

Getting on top of maintenance requires getting “down and dirty”

by Jacob Bustad

Any vehicle needs regular maintenance to keep running, from a dirtbike to an eighteen-wheel tractor-trailer. And every vehicle owner knows that preventive maintenance, where the goal is to monitor and prevent failure in equipment before it occurs, is the best possible way to actually “maintain” the vehicle.

Transit drivers are just as responsible for the vehicles they drive. Every transit agency receiving federal funding is responsible for maintaining property in good operating order in compliance with FTA guidelines. KDOT personnel annually inspect equipment purchased with funds from or used in the operation of Section 5310 and 5311 programs. Annual reports from these inspections are part of a permanent file—a file that is reviewed by KDOT when making future funding decisions for subrecipients.

This article will describe the different steps involved in a preventive maintenance plan, and what you can do to ensure the proper maintenance of both a vehicle and the wheelchair lift or other related equipment.

Pre- and post- trip inspections

A simple daily inspection can enable the driver to spot potential problems and prevent roadside breakdowns. The following list (from the KDOT's *Public Transportation Pre-Trip Inspection Checklist*) is a basic outline of procedures for spotting and reporting potential problems before driving the vehicle each day:

Walk around

- **Tires**—check the tread depth, pressure, and overall condition. No punctures, cracks, tread separations; adequate tread depth prescribed by tire manufacturer.
- **Windows & Mirrors**—Verify windows and mirrors are not cracked or broken.
- **Lights & Reflectors**—Turn on headlights and four-way flashers. Make sure that all lamps illuminate. Check the high and low beams on the headlights. Check to see that reflectors are in good condition.
- **Leaks**—Look for water, oil, gas, transmission, or other fluid leaks under the vehicle. If a leak is detected, report it immediately.

Interior

- **Seatbelts/Safety Restraints**—Check that all are available, functioning, and in good condition (no fraying or other wear).
- **Cleanliness/Items Secured**—Check for cleanliness, all items secured (e.g. assistive devices, scrapers, spray cleaners, etc.)
- **Radio/Communication Equipment**—In good working order.
- **Emergency Equipment**—Check fire extinguisher (on board, fully charged, secured), web cutter, first aid and bloodborne pathogen kit, triangle warning kit, and drag blanket (if applicable).
- **Emergency Door, Roof Hatch, Windows**—Check that all are accessible and in good working order.
- **Wheelchair Lift (if available)**—Cycle the lift. Pay special attention to the wheelchair securement system and how it operates. Double check safety barriers and make sure the lift runs smoothly.



Under hood

- **Oil**—Verify the oil level is between add and full. Fill, if low.
- **Radiator Level**—Check to make sure that the coolant overflow tank is filled to the appropriate level.
- **Windshield Washer Fluid Level**—Check to make sure it is full.
- **Power Steering Fluid**—Check to make sure it is filled to the appropriate level.
- **Brake Fluid**—Check to make sure that the master cylinder is filled to the appropriate level.
- **Transmission Fluid**—Check to make sure it is filled to the appropriate level.
- **Battery**—Check the fluid level of battery (if not maintenance free). Make sure cable connectors are tight and clean of any corrosion.
- **Belts**—Verify that belts are not cracked or worn.
- **Hoses**—Look for leaks. If a leak is detected, report it to maintenance immediately. Make sure hoses are not spongy, brittle or cracked.

KDOT requires agencies to perform these pre-trip inspections every day on all transit vehicles, using KDOT's checklist form. Checklists must be retained for 90 days.

KDOT also requires a post-trip inspection, using another form, for vehicles that fall under Kansas

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Corporation Commission (KCC) regulations. Unlike the pre-trip inspections, these post-trip checklists are not inspected in the yearly maintenance audits but are inspected in every-other-year program audits KDOT performs. KDOT will check to see if your agency has checklists retained for the previous 90 days. KDOT provides each agency a copy of the vehicle audit form before they arrive at the agency for the audit. That way the agency will know what will be inspected. According to KDOT Transit Program Consultant Bret Rowe, this form is typically revised from year to year.

Other regular inspections

While daily inspections are the best way to implement preventive maintenance, other scheduled maintenance is still required. Any preventive maintenance schedule should have activities scheduled on a daily, weekly, and annual basis, as well as activities to be conducted based on mileage of the vehicle. One easy example is an oil change. The vehicle's owner's manual indicates how often the oil should be changed. KDOT reimburses agencies for oil changes. Agencies need to keep invoices for oil changes and submit them to KDOT for reimbursement.

When a vehicle is in for scheduled work, inspections of specific vehicle components should be done. These inspections usually have checklists that are created for each vehicle type, and have different procedures for different vehicles.

Regular inspections should be well-documented in order to develop a comprehensive maintenance record for each vehicle. This should include details for each time maintenance is required, such as whether it was pre-

ventive or unscheduled, and if a road call was required. Other notation should include mileage, description of repair, dates in/out of shop, cost, and names of the personnel that worked on the vehicle.

All of this information can be crucial when understanding how to develop the best maintenance for each vehicle. KDOT provides agencies with an equipment manual—a (white) booklet—to track routine maintenance on a vehicle, such as when the battery was changed, when new tires were added, etc. KDOT requires

be taken out of service before the next service day, and must be repaired before it returns, unless there is no other vehicle available to replace it. If the failure occurs in-service, the vehicle may finish the remainder of that service day. In the case that a vehicle is not available to replace one with a faulty lift, the provider can keep that vehicle in service for no more than five days (if population served is 50,000 or less) or three days (if population served is 50,000 or more).

Pre-trip inspections are part of the maintenance schedule for wheel-

Every transit agency in Kansas should have these two checklists. They are available from BretRowe at bret@ksdot.org

- KDOT Public Transportation Pre-Trip Inspection Checklist
- KCC/FMCSA Post-Trip Inspection Checklist

agencies to maintain these records for the life of the vehicle. Rowe said that while the booklets are not required to be transferred to a new owner if the vehicle is sold, it's a good idea, because that information would be very useful for the next owner.

Maintaining lifts and other accessibility features

Aside from maintaining a vehicle's road performance, transit drivers are also responsible for bus equipment being in compliance with ADA accessibility requirements. This means that vehicles must be readily accessible to individuals with disabilities. This is a component of the KDOT annual inspection, and another factor in future funding decisions.

There are several ADA requirements for wheelchair lifts. First, a schedule of regular maintenance should be developed. Any failure to operate properly should be reported by the driver to the agency immediately. When a lift does fail, it should

chair lifts. A visual inspection of the lift should check hoses, wires, chains and bolts for wear, damage and misalignment. Also, the lift should be run through a complete cycle to ensure operation, and the power source should be checked. A daily maintenance checklist should be developed for each lift to ensure appropriate maintenance.

Transit drivers depend on their vehicles to allow them to do their job as well as possible, and transit passengers depend on these vehicles to increase their freedom. By implementing the proper preventive maintenance plan, both drivers and passengers can expect a better and safer ride, every time.

Source:
Chapter 7 of the *Kansas Rural Transit Provider Handbook*, published by the Kansas University Transportation Center, 2000.
<http://www.kutrc.ku.edu/cgiwrap/kutrc/home/resources.php?page=rtap> ▲